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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/792,130

03/04/2004

Jeong Dae Seo

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EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/792,130

Applicant(s)

SEO ET AL.

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed Janaury 8, 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's amendment and accompanying remarks filed January 8, 2007 are acknowledged.
2. Examiner acknowledges amended claims 1-2, 4-6 and 8-9.
3. The rejection of claims 1-2 and 4-9 under 35 U.S.C. 112, second paragraph as being indefinite is overcome by applicant's amendment.
4. The objections to claims 2, 4, 6 and 8 are overcome by applicant's amendment.

### ***Claim Objections***

5. Claim 1 is objected to because of the following informalities: Delete the term "is" following the phrase "A1 and A2" and insert the term - - and - -. Appropriate correction is required.

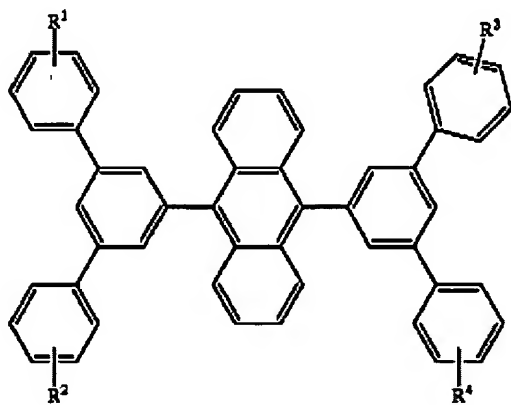
### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

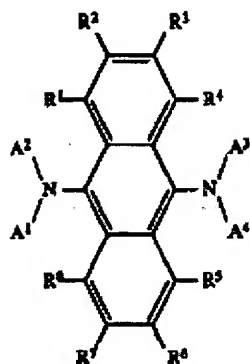
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7. Claims 1, 2, 4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al., U.S. Patent Number 5,972,247 in view Enokida et al., U.S. Patent Number 5,759,444. Shi discloses an organic EL device include an anode, a cathode, and an organic light emitting layer that includes an organic material that includes an organic material or a mixture thereof having the structure



wherein the organic material can be used as a host material (see column 2, lines 10-54 and column 20, line 36-column 21, line 7). Shi's material meets the limitations of the host material of chemical formula 2 as required by present claims 1, 2, 4 and 6-10. Column 20, line 47-column 21, line 7 of the Shi reference discloses that fluorescent dyes of various colors can be used to modify the hue of the color emission. Additionally, the Shi reference discloses that green fluorescent dyes can be used. The Shi reference does not disclose the specific green fluorescent dye. Enokida discloses an organic electroluminescent device comprising a light emitting material such as

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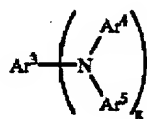
wherein the material provides green light emission (see Enokida examples). Enokida's light emitting material meets the limitations of luminescent material of chemical formula 1 as required by present claims 1, 2, 4 and 6-10. Compounds within the scope of claim 10 are shown in Table 1. Enokida's light emitting material may be used in combination with another light emitting material (see column 25, lines 9-10). The presence of a dopant with a host affects the hue of the light emission as taught by both Shi and Enokida. Shi teaches that blue, green or red emitting fluorescent materials may be used as dopants. Absent a showing of superior/unexpected results commensurate in scope with the present claims, it is the examiner's position that it would have been with the level of skill of one in the art to select suitable dopants from known fluorescent materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a green fluorescent material such as taught by Enokida as a dopant in Shi's light emitting layer in order to tune the color of the EL device.

8. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al., U.S. Patent Number 6,534,199.

Hosokawa discloses an organic electroluminescence device that comprises an organic light emitting medium which is disposed between a pair of electrodes wherein the light emitting

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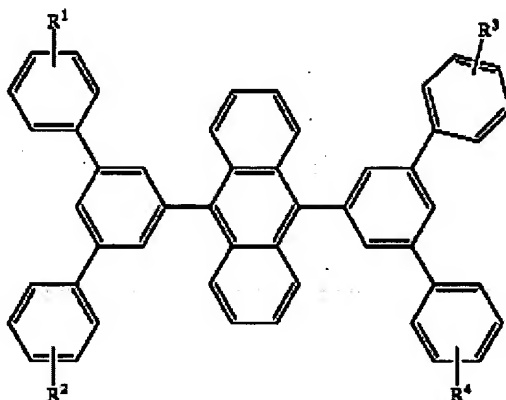
medium comprises an anthracene derivative and a mono-, di-, tri- or tetrasteryl derivative containing an amine. The Hosokawa reference discloses anthracene derivative EM23 which read on instant compound H-11 (see column 14). Also, the compounds EM27, EM30 and EM31 read on instant claims 7-8 when the substituent on the substituted A1 or A2 is aryl, hydrogen or methyl. Hosokawa also discloses a styryl derivative with the structure



wherein  $g$  is an integer of 1 to 4 and  $Ar^3$  to  $Ar^5$  each represent a substituted or unsubstituted aromatic group having 6 to 40 carbon atoms. Styryl derivative EM35 meet the limitations of the material of chemical formula 1 as required by present claims 1, 2, 4-6 and 9 (see columns 17-18). Hosokawa's Examples 2 and 3 provide devices in which the light emitting layer comprises EM 22 as a host material and EM 43 and EM44, respectively, as a dopant. It would have been an obvious modification to one of ordinary skill in the art at the time of the invention to use EM35 or EM36 in place of EM43 or EM44 in Examples 2 and 3 since EM35, EM36, EM43 and EM44 are taught for the same purpose. Regarding the present claim recitation of "green" luminescent material for the material of chemical formula 1 versus Hosokawa's recitation of "bluish" light, there is no positive limitation placed on the peak emission wavelength or CIE coordinates provided by the material of formula 1. As is known in the art, "bluish" light encompasses blue-green light.

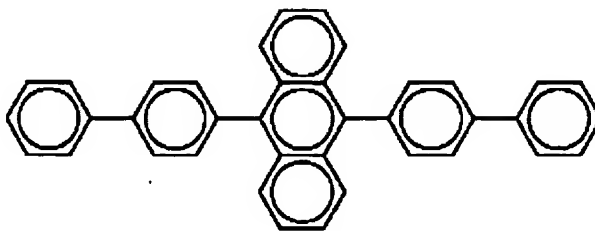
*Response to Arguments*

9. Applicant's arguments filed January 8, 2007 have been fully considered but they are not persuasive. Applicant argues that claim 1 has been amended to include X of chemical formula 2 being limited to anthracene and pyrene and B1 and B2 are limited to aryl, pyridyl, quinoyl and isoquinyl. Applicant argues that the Shi reference does not meet the limitations of the host material in present claim 1. Shi discloses a host material with the structure



The host material of the Shi reference reads on the instant claims when X is anthracene and B1 and B2 are aryl (phenyl) as required by present claims 1 and 4.

Additionally, applicant argues that in light of the amendment to the claims that Hosokawa does not read on present claim 1. Hosokawa discloses a host material with the structure



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which reads on H-11 of the present claims, especially present claim 5. Hosokawa reads on the host structure when X is anthracene and B1 and B2 are substituted aryl (phenyl). Hosokawa teaches the same host material and dopant material in the light-emitting layer of an organic electroluminescence device. The rejections are maintained.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished



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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RENA DYE

SUPERVISORY PATENT EXAMINER

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